

In The Claims

Please amend the claims as follows:

Claim 1-29 (Cancel)

30. (Original) A transport unit for transporting hyperpolarized gas products, comprising:

at least one gas chamber configured to hold a quantity of hyperpolarized gas therein;

a first upstanding end wall comprising a first set of spaced-apart discrete permanent magnets positioned thereon;

a second upstanding end wall positioned in said transport unit spaced apart from and opposing said first wall to define a gas enclosure volume for holding said gas chamber therebetween, said second upstanding wall comprising a second set of spaced-apart discrete permanent magnets positioned thereon;

wherein said first and second magnet sets are circumferentially arranged about two corresponding circles with corresponding first diameters and aligned centers on said first and second walls, respectively;

wherein each of said discrete permanent magnets has a magnetic north and south pole associated therewith; and

said first magnet set is arranged on said first wall such that the magnetic north pole of each magnet in said first magnet set is directed toward the center of the circle that said first magnet set is arranged thereabout, and the magnetic south pole of each magnet in said second magnet set is directed toward the center of the circle around which said second magnet set is arranged about; and

wherein said permanent magnets in each of said first and second magnet sets are arranged to laterally extend toward the other a minor distance to define a central free space with a magnetic holding field having a region of homogeneity therebetween.

31. (Original) A transport unit according to Claim 30, wherein said first and second magnet sets comprise an equal number of discrete permanent magnets, and wherein said first and second magnet sets are arranged such that each of said permanent magnets in said first set is aligned with an opposing permanent magnet in said second set.

32. (Original) A transport unit according to Claim 31, wherein each of said permanent magnets in said first and second sets is disposed such that it is diametrically opposed from another of said permanent magnets in its respective first or second set.

33. (Original) A transport unit according to Claim 30, further comprising third and fourth upstanding walls and opposing top and bottoms which together with said first and second walls define a metallic housing, and wherein said housing is spaced apart a predetermined separation distance from the perimeter of the gas chamber holding a major volume of said hyperpolarized gas therein.

34. (Original) A transport unit according to Claim 30, wherein said first and second walls are positioned inside a structural housing, and wherein said housing is configured to be spatially separated a predetermined separation distance from the perimeter of the gas chamber holding a major volume of said hyperpolarized gas therein.

35. (Original) A transport unit according to Claim 33, wherein said predetermined distance is at least about 2 inches.

36. (Original) A transport unit according to Claim 34, wherein said predetermined distance is at least about 2 inches.

37. (Original) A transport unit according to Claim 31, wherein said equal number of separate permanent magnets is at least eight.

38. (Original) A transport unit according to Claim 30, further comprising a gas platform positioned in said transport unit such that each of said at least one gas chamber is held substantially along a common axis proximate to the magnetic holding field region of homogeneity.

39. (Original) A transport unit according to Claim 30, wherein said at least one gas chamber is a plurality of gas chambers.

40. (Original) A transport unit according to Claim 30, wherein said permanent magnets are disk magnets.

41. (Original) A transport unit according to Claim 30, further comprising a third supplementary set of magnets arranged to be circumferentially spaced apart about a third circle having a second diameter, wherein said set of supplementary magnets is positioned intermediate said first and second magnet sets.

42. (Original) A transport unit according to Claim 41, wherein said second diameter is greater than said first diameter.

43. (Original) A transport unit according to Claim 42, wherein said first diameter is about between 0.4 to 0.8 times the size of said second diameter.

44. (Original) A transport unit according to Claim 42, wherein magnets comprising said supplementary set of magnets have a north pole and a south pole associated therewith, and

wherein said north pole of said supplementary magnet points normal to the plane defined by said third circle and in the direction of a plane defined by said first circle.

45. (Original) A transport unit according to Claim 41, wherein said third supplementary set of magnets is positioned as an equatorial set of magnets.

46. (Original) A transport unit according to Claim 30, further comprising a first quantity of a hyperpolarized gas and a second quantity of a buffer gas held in said at least one gas chamber.

47. (Original) A method of fabricating a cylindrically shaped magnetic field volume, comprising the steps of:

rolling a flexible magnetic sheet into a first hollow cylinder such that the ends touch but do not overlap;

applying a magnetic field to the cylindrically configured flexible magnetic sheet; unrolling the flexible magnetic sheet; and

rerolling the flexible magnetic sheet into a second hollow cylinder such that the ends touch but do not overlap, and such that the side that was inside said first hollow cylinder is on the outer side of said second hollow cylinder.

48. (Original) A transport unit for holding a quantity of hyperpolarized gas therein comprising:

at least one container for holding hyperpolarized gas;

a flexible material layer having an applied magnetization, wherein said flexible layer is configured as a cylinder, wherein said flexible material layer has magnetic north and south poles thereon, and a magnetic field strength associated therewith, wherein said flexible material layer defines a homogeneous magnetic holding field operably associated with said gas container; and

a housing configured to receive said flexible material cylinder and said gas container therein.

49. (Original) A transport unit according to Claim 48, wherein said at least one container is a plurality of containers.

50. (Original) A transport unit according to Claim 48, wherein said housing includes four upstanding walls, and wherein said walls are at least 2 inches away from said gas container.

51. (Original) A transport unit according to Claim 48, wherein said flexible material layer is magnetized such that the direction of the magnetic north varies about the circumference of said cylinder.

52. (Original) A transport unit according to Claim 51, wherein said flexible cylinder includes a continuous surface represented by a plurality of adjacent points drawn in space;

wherein each point on said flexible cylinder has a direction of magnetic north associated therewith;

wherein each of said plurality of points has a first vertical axis associated therewith which intersects said point;

wherein said flexible cylinder has a second vertical axis associated therewith which diametrically extends to bisect opposing top and bottom surfaces of the cylinder; and

wherein said flexible cylinder is configured such that at any point, a first angle between said magnetic north direction and said first vertical axis is about twice the magnitude of a second angle between said second vertical axis and a line to said point from the center of said second diametrical axis.